THE RECOVERY KERNEL

Prevention Architecture Series

STAY
NON-ADDICTED

The Recovery Kernel Prevention Protocol

An Eleven-Step Genomic-First Framework for People Who Are Not Addicted

and Intend to Stay That Way

Using the Recovery Kernel Biohacker Tool Suite

This guide does not contain advice from Reddit, forums, or general wellness sources.

Every recommendation comes from your genomic profile and the Recovery Kernel Compendium.

Goal: Stay entirely out of the healthcare system through precision self-knowledge.

A Note Before You Begin

THE CENTURION — YOU ARE NOT A GENERIC HUMAN — Protocol 06's Foundational Principle

The Recovery Kernel Compendium states the central premise of this entire guide in five words: 'You are not a generic human.' Every traditional healing system — Ayurvedic doshas, Chinese medicine constitutional types, Greek humors — began with this recognition. Modern genomics confirms it with molecular precision: your body has specific characteristics that determine how you process neurotransmitters, clear toxins, respond to stress, metabolize medications, and experience the pull of addictive substances.

Every guide in the Recovery Kernel series was written for people already in the territory of addiction — trying to find their way back. This guide is different. This guide is for the person standing outside that territory, and intending to stay there.

The Recovery Kernel's framework — genomic profiling, constitutional assessment, supplement and peptide matching, lifestyle architecture, natural reward systems — was built as a recovery tool. But its architecture is preventive in design. You do not have to develop a dependency to use the framework. You can use it to map your vulnerabilities before they are exploited, build the natural reward systems before the absence creates a gap, and identify the substances that your specific biology must avoid before you encounter them.

This guide is not about fear. It is not about restriction. It is about the same precision that the compendium applies to recovery — applied proactively, to people who have not yet had the problem, as the most effective available means of ensuring they never do.

The goal stated plainly: Stay entirely out of the healthcare system through precision self-knowledge. Know what your genome says. Treat what needs treating before it creates a hole. Build what you need before the absence creates urgency. Identify what you must avoid before it finds you. Live the natural architecture that makes the artificial one unnecessary.

Eleven steps. Read them in order. Complete each before moving to the next. This is a workflow, not a reading list.

The Self-Sovereign Health Model

THE CENTURION — The Architecture of Not Needing the System

Staying out of the healthcare system entirely is not the same as ignoring your health. It requires more precision, more consistency, and more self-knowledge than most people in the healthcare system apply. The Self-Sovereign Health Model has three pillars:

Pillar 1 — Know Your Biology	Pillar 2 — Build What's Missing	Pillar 3 — Avoid What Breaks You
Genomic profiling reveals your specific vulnerabilities and strengths before they become clinical problems. MTHFR impairs methylation before symptoms appear. DRD2 A1 creates reward deficiency before substances are ever encountered. COMT constitution determines whether stimulation or calm is your primary need. Know this first.	What your biology produces below optimal levels — dopamine, serotonin, folate conversion, endorphins — creates the gaps that substances fill. Building the natural production of these through your matched supplement stack, peptide protocol, and lifestyle architecture fills the gaps before they become holes.	Your specific genome determines which substances are most likely to exploit your vulnerabilities. A CYP2D6 poor metabolizer who takes codeine is in danger. A GABRA2 high-risk carrier who drinks is in danger. An MTHFR C677T homozygous who takes folic acid instead of 5-MTHF is impaired. Know what breaks your specific biology and do not give it the opportunity.

The self-sovereign model does not eliminate all medical interaction — emergencies require emergency care. What it eliminates is the chronic, preventable healthcare engagement that comes from not knowing your biology: the depression that was actually MTHFR-impaired folate conversion, treated with SSRIs that might have been unnecessary. The ADHD diagnosis that was actually dopamine baseline insufficiency, addressable through DRD2 recovery. The anxiety disorder that was actually Sage COMT chronic overstimulation, manageable through lifestyle architecture. These are the encounters that precision self-knowledge prevents.

STEP 1 — GET YOUR DNA — THE GENOMIC FOUNDATION

THE CENTURION — The First Action. Without This, Everything Else Is Generic.

The entire framework depends on your specific genomic data. Consumer genetic tests provide a starting point. Whole genome sequencing provides the full picture. Nothing in this guide should be implemented with generic assumptions — your profile is yours alone.

1.1 — What Testing Is Required

Test type	What it provides	Recommended for this framework
30x Whole Genome Sequencing (WGS)	Complete genomic coverage at 30 reads depth. Identifies all SNPs, insertions, deletions, and structural variants. Output: a VCF (Variant Call Format) file — the raw data the Python profiler requires.	RECOMMENDED AS PRIMARY. Required for the biohacker_multi_domain_profiler .py script. Nebula Genomics, Dante Labs, Sequencing.com all offer 30x WGS. Price has fallen to $200–$400. This is the one-time foundational investment.
Consumer SNP arrays (23andMe, Ancestry)	Tests ~700,000 specific SNPs. Not a sequencing test — looks at pre-selected positions only. Raw data downloadable as a .txt file. Can be analyzed through Genetic Genie and Promethease for MTHFR, COMT, DRD2, etc.	ACCEPTABLE AS STARTING POINT. Does not produce the VCF file the full profiler requires. Covers MTHFR C677T and A1298C, COMT Val158Met, some CYP variants. Use as interim measure while saving for WGS. Download your raw data immediately after receiving results.
Clinical pharmacogenomic panels (GeneSight, Mayo Clinic GeneGuide)	Focused panels covering CYP2D6, CYP2C19, CYP3A4, CYP2B6, and select other genes. Physician-ordered. Results are clinical-grade.	VALUABLE ADDITION for the substance interaction analysis (Step 5). Does not replace WGS for the full domain profile. If physician access is available, combine with WGS for maximum utility.
Blood-based methylation markers	Serum homocysteine (elevated = impaired methylation, likely MTHFR), serum methylmalonic acid (B12 status), RBC folate (folate status), serum B12.	QUARTERLY MONITORING TOOL (Step 11). These are the functional proxies for MTHFR impact. Ordering through direct-access labs (Ulta Lab Tests, Request A Test) does not

		require a physician in most US states. Homocysteine is the most actionable single marker.

1.2 — The VCF File: What to Do With Your Raw Data

When you receive your whole genome sequencing results, you will receive a VCF file — a text-based file listing every genetic variant found in your genome compared to the reference. This is the input for the biohacker DNA profiler tool.

- Download and securely store your VCF file. This file contains your complete genetic information. Treat it with the same security as financial documents.
- The VCF file is the single most valuable health asset you will ever generate. It does not change. The test is done once.
- For consumer test data (23andMe/Ancestry): download your raw data from your account settings. This produces a .txt file. The full profiler requires VCF format — use a conversion tool or wait for WGS.

STEP 2 — RUN THE DNA PROFILER — GENERATE YOUR 16 DOMAIN HEALTH CODES

THE CENTURION — The Python Script That Translates Your Genome Into an Actionable Health Profile

The Recovery Kernel biohacker tool suite includes biohacker_multi_domain_profiler.py — a Python script that reads your VCF file and generates 16 domain health codes, one for each of the major biological domains the framework tracks. These codes are the language your personalized prevention protocol is written in.

2.1 — Running the Profiler

COMMAND TO EXECUTE

```
python3 biohacker_multi_domain_profiler.py your_genome.vcf
```

The script analyzes your VCF against the Recovery Kernel's variant database and outputs 16 domain codes — one for each domain listed below. Save this output as a JSON file for import into the dashboard.

2.2 — The 16 Domain Health Codes

Code	Domain	What it reveals about your prevention architecture
NM	Neuromodulatory	Your serotonin, dopamine, and stress response burden. The NM code is your first window into addiction vulnerability — high NM burden means the neurochemical gaps that substances fill are more pronounced in your baseline. The higher your NM H-score, the more critical your natural neurotransmitter architecture becomes.
RC	Respiratory-Cardiovascular	Endothelial function, blood pressure regulatory genetics, vascular risk. Your RC code determines which cardiovascular-stressing substances (stimulants, nicotine) carry highest risk for you specifically. High MTHFR burden amplifies RC risk through homocysteine.
HM	Hormone-Metabolic	Estrogen metabolism, cortisol clearance, thyroid genetic factors. Your HM code determines whether hormone-disrupting substances (anabolic steroids, some cannabinoids) carry elevated risk. Also reveals whether stress-hormone chemistry predisposes you to depressant use.
SX	Sexual Enhancemen	COMT-dopamine interaction with arousal and motivation. Your SX code reveals whether sexual enhancement

	t	substances (poppers, PT-141, etc.) carry specific risks for your profile. The dangerous ED drug + poppers interaction is genotype-relevant.
CB	Cognitive-Brain	Prefrontal function, BDNF genetics, cognitive resilience. Your CB code determines whether your baseline cognitive function is supported or deficient — and whether cognitive enhancers (stimulants, racetams, peptides) are appropriate additions or unnecessary risks.
MW	Metabolic-Weight	Fat metabolism, appetite regulation, metabolic rate genetic factors. Relevant to GLP-1 use, stimulant use for weight management, and the metabolic consequences of substance exposure.
SL	Sleep-Longevity	Melatonin synthesis, NAD+ recovery genetics, circadian clock gene variants. Your SL code determines your sleep vulnerability — the most commonly substance-addressed deficiency. Poor SL code = high risk of using substances to sleep.
MP	Muscle-Performance	Creatine metabolism, protein synthesis capacity, ACTN3 athletic genetics. Relevant to anabolic steroid risk assessment and to building the physical intensity architecture that the Warrior constitution requires.
MX	Mood-Anxiety	Serotonin transporter (SLC6A4), stress axis genetics. THE most addiction-predictive domain code alongside NM. High MX burden = high anxiety susceptibility = high depressant and cannabis vulnerability. This code determines urgency of the anxiety management architecture.
EM	Energy-Mitochondrial	NAD+ production, mitochondrial genetics, ATP synthesis capacity. Low EM score = energy deficiency that stimulants fill. Build this first — it determines the daily energy architecture that makes stimulants unnecessary.
NP	Neuroprotection	APOE status, antioxidant genetics, neuroinflammation susceptibility. APOE ε4 carriers have the strongest argument for aggressive neuroprotective lifestyle — and the most specific substances to avoid (alcohol carries documented APOE ε4 amplified neurodegeneration risk).
DX	Detox-Liver	Phase 1 and Phase 2 liver detoxification genetics. CYP1A2, CYP2D6, CYP2B6, CYP3A4, CYP2C19 variants identified here determine which substances accumulate to toxic levels in your body. This code feeds directly into Step 5 (the substance avoidance database).
HO	Hormone-Optimization	HPA axis stress genetics, cortisol metabolism, circadian hormone regulation. Chronic HPA axis overdrive (Sage COMT high-burden) is a primary predictor of depressant use. This code determines whether stress management is a maintenance priority or a critical intervention.
CV	Cardiovascular	MTHFR-homocysteine-cardiac risk, lipid genetics, cardiovascular resilience. High CV burden with MTHFR homozygous means stimulants, nicotine, and cocaine carry

		higher cardiovascular risk than average. The CV code is the most immediately life-protecting output of the profiler.
GH	Gut-Health	Tight junction integrity, microbiome genetics, intestinal permeability. MTHFR affects gut-barrier integrity. Substance-use impact on the gut microbiome is a significant secondary effect. The GH code determines whether gut support is a first-tier intervention in your stack.
BP	Big-Picture	The integrated cross-domain view. Your overall genomic burden score across all 15 domains. The BP code is the compass: low burden = maintenance mode; high burden = active intervention required across multiple domains simultaneously.

2.3 — Importing Your Codes Into the Dashboard

Once the Python script generates your 16 codes, import them into the biohacker_final_edition_with_json_import.html dashboard:

1. Save the Python output as a JSON file using the format shown in the test data
2. Open the dashboard HTML file in any web browser
3. Use the 'Import JSON' function — all 16 code fields populate automatically
4. Enter your body weight and composition in the personalization fields
5. Click 'Analyze All Codes' — your profile-matched supplement stack, peptide recommendations, and weight-based dosing appear
6. This output — and ONLY this output — is what you implement. Nothing else.

STEP 3 — MTHFR IS ALWAYS FIRST — TREAT THE CLEANSING PATHWAY

THE CENTURION — The Single Most Impactful Intervention for Approximately 40% of People Reading This

⚠ IF YOUR PROFILER SHOWS MTHFR C677T HOMOZYGOUS (TT) OR A1298C HOMOZYGOUS OR C677T/A1298C COMPOUND HETEROZYGOUS: THIS IS YOUR FIRST AND MOST URGENT INTERVENTION. BEFORE SUPPLEMENTS, BEFORE PEPTIDES, BEFORE LIFESTYLE ARCHITECTURE.

The compendium's Protocol 06 names MTHFR the 'cleansing pathway' and states the core fact: MTHFR variants are carried by approximately 40% of the population. They reduce enzyme function to 30–70% of normal. The consequences are systemic and often silent — until the right stressor arrives.

3.1 — What MTHFR Actually Is

MTHFR (methylenetetrahydrofolate reductase) is the enzyme that converts dietary folate into 5-methyltetrahydrofolate (5-MTHF) — the active form of folate that the methylation cycle uses. Methylation is not one biochemical process. It is the backbone of:

- Neurotransmitter synthesis — dopamine, serotonin, norepinephrine all require methylation-cycle cofactors at rate-limiting steps
- DNA repair and regulation — methylation tags on DNA control gene expression
- Detoxification — Phase 2 liver detox is methylation-dependent
- Homocysteine clearance — elevated homocysteine is the primary downstream consequence of impaired MTHFR, and elevated homocysteine is an independent cardiovascular risk factor, a neurological toxin (NMDA agonist at high levels), and a marker of impaired methylation across all the above systems
- Myelin synthesis — the insulation of nerve fibers requires methylation-dependent processes

3.2 — The ADHD Misdiagnosis Problem — May Not Be ADHD At All

THE CENTURION — The Gap That Folic Acid Made Worse and 5-MTHF Can Close

The compendium's MTHFR section makes a critical clinical observation that this guide elevates to a central teaching: many people who receive an ADHD diagnosis

— particularly those who do not respond to medication, or who respond poorly — have MTHFR variant-impaired dopamine synthesis, not a primary attention disorder.

Here is the mechanism:

7. MTHFR impairment reduces the availability of BH4 (tetrahydrobiopterin) — the cofactor required for tryptophan hydroxylase (serotonin synthesis) AND tyrosine hydroxylase (dopamine synthesis).
8. Reduced BH4 → reduced dopamine synthesis capacity → lower baseline dopamine.
9. Lower baseline dopamine produces: inattention, impulsivity, poor working memory, difficulty sustaining effort without stimulation — the diagnostic criteria for ADHD.
10. Standard ADHD medication (amphetamine, methylphenidate) works by blocking dopamine reuptake — temporarily raising the available dopamine. It works even in the absence of primary ADHD.
11. Meanwhile, the standard prenatal and dietary supplement — folic acid — CANNOT be converted to usable 5-MTHF by MTHFR variant carriers. In fact, high-dose folic acid in MTHFR poor converters may accumulate as unmetabolized folic acid (UMFA) and interfere with the natural folate pathways that are working.
12. 5-MTHF (L-methylfolate) — the active form that bypasses MTHFR — directly increases BH4 availability → directly increases dopamine synthesis capacity → directly addresses the dopamine deficit that was producing ADHD-like symptoms.

The implication: before accepting an ADHD diagnosis and beginning stimulant medication, confirm your MTHFR status and trial 5-MTHF. For MTHFR variant carriers, the 'ADHD' may resolve substantially with adequate methylation support — leaving stimulant medications as unnecessary exposures to substances with significant dependency potential.

3.3 — The Folic Acid vs. 5-MTHF Distinction

⚠ NEVER TAKE STANDARD FOLIC ACID IF YOU HAVE MTHFR VARIANTS. THE SYNTHETIC FORM IN MOST MULTIVITAMINS AND FORTIFIED FOODS CANNOT BE CONVERTED AND ACCUMULATES AS UNMETABOLIZED FOLIC ACID — POTENTIALLY WORSENING THE UNDERLYING METHYLATION IMPAIRMENT.

Folic acid (avoid for MTHFR variants)	L-methylfolate / 5-MTHF (use this)	**How to know which you are taking**
Synthetic compound found in: most multivitamins, B-complex vitamins, fortified cereals, fortified bread,	Active form of folate that bypasses the MTHFR enzyme. Brands: Deplin (prescription), Metafolin	Read your supplement labels. If it says 'folic acid' — it is the form that MTHFR variant carriers cannot

prenatal vitamins, energy drinks' B-vitamin blend	(Solgar), Quatrefolic (various). Any supplement that says 'L-methylfolate' or '5-MTHF' or lists folate as '(6S)-5-methyltetrahydrofolate.'	effectively convert. Replace with 5-MTHF. If it says 'folate' — look at the form specified in parentheses.

3.4 — The MTHFR Priority Stack

This stack applies to ALL MTHFR variant carriers, regardless of your domain code output. It is the foundation before anything else:

Supplement	Dose	Timing	Why
5-MTHF (L-methylfolate) — the foundational intervention	400–1000mcg daily	Morning with food — consistency matters more than precise timing	The active folate form that bypasses the impaired MTHFR enzyme. Start at 400mcg and assess response over 4 weeks. Some MTHFR homozygous individuals do better titrating up to 1000mcg. If significant mood shifts occur with starting: reduce dose and increase more slowly — this indicates the methylation cycle is responding and adjusting.
Methylcobalamin (active B12)	1000–2000mcg sublingual	Morning	Works synergistically with 5-MTHF in the methylation cycle. Sublingual methylcobalamin (NOT cyanocobalamin, NOT hydroxocobalamin for the primary dose) provides the active B12 the cycle requires. The methyl donor partnership: 5-MTHF + methylcobalamin together provide what neither provides alone.
P5P (pyridoxal-5-phosphate — active B6)	25–50mg	Morning	Active B6 cofactor for the transsulfuration pathway — the downstream branch of the methylation cycle that processes homocysteine to cysteine and then to glutathione. Without adequate P5P, homocysteine cannot be efficiently cleared even when 5-MTHF and methylcobalamin are adequate. Use P5P form only — not pyridoxine.

Magnesium glycinate	400–600mg elemental	Morning and evening	Cofactor for multiple methylation cycle enzymes. Magnesium deficiency impairs the methylation cycle's efficiency even when other cofactors are adequate. The glycinate form provides superior absorption and secondary anxiolytic benefit through GABA receptor support.
Riboflavin (B2)	25–100mg	Morning with food	MTHFR enzyme requires riboflavin (B2) as a cofactor — it is the FAD-dependent enzyme. In C677T homozygous variants specifically, riboflavin supplementation has been shown in clinical trials to reduce homocysteine and improve MTHFR enzyme activity even with the genetic variant. This is a specific intervention for C677T carriers.
Betaine / TMG (trimethylglycine)	500–1000mg	Morning	Alternative methyl donor through the BHMT enzyme — provides an alternative homocysteine remethylation pathway that is independent of the MTHFR enzyme. Particularly important for MTHFR homozygous carriers as a backup remethylation route. Also reduces the morning homocysteine peak.

SANCTUARY — Homocysteine monitoring: test serum homocysteine every 3 months while establishing the MTHFR stack. Target: below 8 µmol/L. Optimal: 6–7 µmol/L. This is your methylation proxy and the most direct functional feedback on whether your stack is working.

3.5 — The Nitrous Oxide Contraindication for MTHFR Carriers

⚠ MTHFR VARIANT CARRIERS SHOULD NEVER USE NITROUS OXIDE — INCLUDING FOR DENTAL ANESTHESIA — WITHOUT EXPLICIT PRIOR METHYLCOBALAMIN SUPPLEMENTATION AND PHYSICIAN DISCLOSURE. THE COMPENDIUM STATES: 'ADVERSE REACTIONS TO NITROUS OXIDE (DENTAL) → MTHFR LIKELY +2.'

Nitrous oxide irreversibly oxidizes vitamin B12, blocking methionine synthase. In MTHFR carriers with already-impaired methylation, this creates a double impairment that can produce neurological consequences (Subacute Combined

Degeneration of the spinal cord) at doses that are routine for dental procedures. Tell every dentist: 'I have MTHFR variant — please note this in my chart and discuss nitrous oxide alternatives with me before any procedure.'

STEP 4 — READ YOUR CONSTITUTIONAL PROFILE — WARRIOR OR SAGE

THE CENTURION — The Two Fundamental Brain Types — And What Each Needs to Stay Non-Addicted

After MTHFR, the most impactful single genomic insight for prevention is your COMT constitution. The compendium names two fundamental constitutional profiles and the substances each is most drawn toward. Understanding which you are determines your primary vulnerability and your primary prevention architecture.

4.1 — The Two Constitutions

	THE WARRIOR — Val/Val COMT (Fast Clearance)	THE SAGE — Met/Met COMT (Slow Clearance)
Baseline dopamine	LOWER — fast COMT clears dopamine quickly, producing a lower resting dopamine state	HIGHER — slow COMT accumulates dopamine and other catecholamines, producing chronic high-load state
Natural orientation	Seeks stimulation, challenge, novelty, intensity. Thrives under pressure. Bored without stimulus. Compendium: 'Vigorous exercise, challenge, novelty, dopamine-supporting nutrition. Do not expect calm life to feel satisfying immediately.'	Overwhelmed by excessive stimulation. Deep emotional processing. Prefers calm, structured environments. Compendium: 'Stress management as the central pillar. Meditation, nature, quiet environments, digital detox. Reduce caffeine. Address anxiety as a core condition.'
Substance vulnerability	Stimulants (cocaine, meth, amphetamine) — they fill the baseline dopamine deficit with extraordinary efficiency. The Warrior brain finds stimulants solving a real biological problem. Watch for addiction transfer — the fast COMT brain will seek stimulation through any available channel.	Depressants (alcohol, benzodiazepines, GHB, cannabis) — they quiet the chronically overloaded prefrontal catecholamine system. The Sage brain finds depressants solving a real biological problem. Watch for anxiety self-medication through any available sedating channel.
Prevention priority	BUILD STIMULATION: high-intensity exercise, competition, mastery, genuine challenge. The Warrior must have these or the pull toward stimulants is biological, not volitional.	BUILD CALM: daily meditation, magnesium, low-caffeine lifestyle, structured routine, nature exposure. The Sage must have these or the pull toward depressants is biological, not

		volitional.
Sports matching	Contact sports, HIIT, powerlifting, martial arts, competitive running, competitive team sports. Maximum intensity and outcome stakes.	Yoga, hiking, swimming, cycling (non-competitive), rock climbing, tai chi, archery. Challenge without overwhelming arousal.
Caffeine	Moderate caffeine is tolerated better — fast COMT clears catecholamines efficiently. Still apply the CYP1A2-based cut-off from the energy drink intelligence guide.	Reduce caffeine significantly or eliminate. The Sage's already-elevated catecholamine baseline combined with caffeine's adenosine blockade compounds the overstimulation that drives depressant seeking.

4.2 — The Reward Deficiency Dimension: DRD2 A1 Allele

THE CENTURION — The Genome That Was Born Needing More

COMT constitution is the first axis. DRD2 A1 allele is the second. The compendium: 'HIGH probability of RDS and DRD2 variants. This is likely your PRIMARY vulnerability. You will always need more dopamine sources than average. Recovery must include a robust reward replacement system. Single-focus recovery often fails for RDS — multiple pursuits are needed.'

For the person who has NOT yet developed addiction: this same principle applies proactively. If your dashboard shows high RDS score (DRD2 A1 allele, low D2 receptor density), you were born with a reward circuit that requires more input than average to register satisfaction. You will encounter substances that fill this gap with extraordinary efficiency. Your prevention protocol must pre-fill the gap:

- Multiple parallel reward sources — not one activity but five or more genuine reward-generating activities
- Never a single all-consuming pursuit that then collapses — the one-source person is most vulnerable when that source disappears
- High-dopamine natural activities maintained consistently, not episodically
- The Brain Stack (UMP + DHA + CDP-Choline) as a structural intervention for D2 receptor upregulation — building the receptor density that the A1 allele reduced

4.3 — The Full Vulnerability Matrix

Genetic factor	Vulnerability it creates	Prevention priority
MTHFR C677T homozygous	Systemic neurotransmitter synthesis deficit. Every substance that floods the	TREAT MTHFR FIRST (Step 3). Close the gap through the correct form of folate. This

	neurotransmitter systems is solving a real biological insufficiency. The gap is real.	single intervention addresses more vulnerability than any other.
COMT Val/Val (Warrior)	Dopamine deficit at baseline. Stimulants, cocaine, methamphetamine are specifically dangerous. Energy drinks, nicotine as entry points.	Build genuine high-intensity natural dopamine architecture before encountering stimulants. Competition, mastery, vigorous exercise. These must be established, not promised.
COMT Met/Met (Sage)	Catecholamine overload and anxiety. Alcohol, benzodiazepines, GHB, cannabis are specifically dangerous as anxiety self-medication. Caffeine is an amplifier of the vulnerability.	Build genuine calm architecture. Meditation established before anxiety becomes chronic. Magnesium baseline. Low-caffeine lifestyle. Stress management as non-negotiable.
DRD2 A1 allele (RDS)	Reward circuit deficit — everything feels insufficient. Any substance that provides outsized reward signal is extremely compelling.	Multiple parallel reward sources. Brain Stack for receptor density. Never allow a single activity to be the only reward source.
SLC6A4 short/short (5-HTTLPR)	Lower serotonin transporter expression — higher emotional reactivity, lower serotonin baseline. MDMA, alcohol (serotonin releasing), social anxiety self-medication risk.	5-MTHF and 5-HTP support for serotonin synthesis. Social anxiety treatment if present. MDMA specifically should be avoided — it devastates an already-lower serotonin baseline with particular efficiency.
GABRA2 high-risk haplotype	Lower GABA-A baseline tone. The compendium calls this the 'Hard Fail Genotype' for alcohol. Alcohol fills the GABA deficit with extraordinary precision.	Alcohol is uniquely dangerous for GABRA2 high-risk carriers. This is not a preference — it is a pharmacological trap set by your genome. The prevention intervention is taurine, magnesium, and GABA-supportive practices as the alternative GABA architecture.
OPRM1 G allele (reduced MOR binding)	Reduced mu-opioid receptor binding means lower natural endorphin satisfaction from social connection, exercise, and physical touch. Opioids specifically solve this deficit.	Build the endorphin architecture deliberately and consistently: exercise (the runner's high is endocannabinoid AND opioid), physical safe touch, genuine laughter, community. If natural endorphin sources are insufficient: DLPA supports endogenous opioid longevity.
FAAH C385A (low FAAH — AA genotype)	Lower anxiety and higher stress resilience through elevated anandamide. The AA genotype is PROTECTIVE against anxiety-	Maintain this advantage. FAAH inhibition is a natural gift. Support it through regular exercise (anandamide release)

	driven substance use.	and avoiding substances that suppress natural endocannabinoid production through exogenous flooding.
AKT1 T/T (synthetic cannabinoid / cannabis psychosis risk)	Elevated dopamine dysregulation risk from CB1 receptor activation. Cannabis and especially synthetic cannabinoids carry much higher psychosis risk for T/T carriers.	Cannabis is specifically more dangerous for AKT1 T/T carriers. If cannabis use is a personal consideration, this genetic information should be the deciding factor. Synthetic cannabinoids are an absolute contraindication for this profile.

STEP 5 — THE SUBSTANCE INTERACTION CHECKER — DRUGS YOU SHOULD NEVER TAKE

THE CENTURION — Your CYP450 Profile Is Your Personal Drug Safety Database

The biohacker drug interactions checker uses your CYP450 genotype from the DNA profiler to identify which substances — pharmaceutical and recreational — carry specific elevated risk for your biology. This is not a moral list. It is a pharmacokinetic safety database.

The principle: knowing which substances your body cannot safely metabolize, which genomic vulnerabilities specific drugs will exploit, and which combinations create specific dangers is the most direct available form of pre-addiction protection. You cannot be pulled toward something you have genuinely categorized as dangerous for your specific biology.

5.1 — CYP450-Based Substance Avoidance

Your genotype	What to NEVER take or approach with extreme caution	Why
CYP2D6 *4/*4 Poor Metabolizer	Codeine — NEVER. Tramadol — NEVER. DXM (dextromethorphan, cough syrup) — extreme caution/avoid. Oxycodone — modified dose only under physician supervision. Certain antidepressants (fluoxetine, paroxetine) — interact with CYP2D6 pathway.	CYP2D6 converts codeine to morphine. Poor metabolizers cannot do this conversion — codeine may not work AND may accumulate to toxic levels. Tramadol → active metabolite conversion fails similarly. DXM accumulates at serotonergic toxicity risk rather than converting to the dissociative metabolite. The compendium: 'It can prevent a future prescription from being either ineffective or fatal.'
CYP2D6 Ultra-Rapid Metabolizer	Codeine — NEVER (different reason). Tramadol — extreme caution. Any opioid — reduced dose with monitoring.	Ultra-rapid CYP2D6 converts codeine to morphine too fast — pediatric deaths documented. The accumulation of active morphine exceeds intended dose. This is the same contraindication as poor metabolizer but for the opposite reason.
CYP2B6 *6/*6 Poor	PCP / ketamine / dissociatives —	CYP2B6 poor metabolizers

Metabolizer	dramatically elevated psychosis risk and prolonged duration. Efavirenz (HIV medication) — dose adjustment required. Bupropion — modified dose. The compendium names this the 'Dissociative Logjam Risk.'	cannot clear dissociative compounds adequately. PCP especially — the prolonged psychosis in poor metabolizers can last weeks. If you have CYP2B6 *6/*6: dissociative substances are the highest-risk category for your specific genome.
CYP3A4 Inhibitors (concurrent medications)	When taking CYP3A4 inhibitors (fluconazole, clarithromycin, grapefruit, some HIV ARTs): dramatically reduce or avoid fentanyl, kratom (7-OH-MG), benzodiazepines, ketamine, and other CYP3A4-cleared substances.	CYP3A4 inhibitors block the primary clearance pathway for many substances, causing accumulation. The same 'dose' of fentanyl taken while on fluconazole is effectively a much higher dose. This is a drug-drug interaction that has killed people who didn't know about it.
CYP1A2 CC Slow Metabolizer (caffeine)	High-dose caffeine (Bang 300mg, multiple energy drinks): specifically elevated cardiovascular risk. No caffeine after noon. Maximum 100–150mg per day. The energy drink intelligence guide's CYP1A2 framework applies fully.	CYP1A2 slow metabolizers have caffeine half-lives of 7–9 hours. A 3 PM energy drink has significant caffeine at midnight. Sustained blood pressure elevation from sustained caffeine exposure. The cardiovascular risk data for CC genotype at high caffeine doses is documented.
ALDH2 *2/*2 Homozygous	Alcohol — extremely elevated acetaldehyde toxicity. Even small amounts cause severe flushing, nausea, and systemic toxicity. Most common in East Asian populations.	ALDH2 *2/*2 cannot clear acetaldehyde (the toxic alcohol metabolite) efficiently. The flushing reaction is the body's emergency signal. This is not an inconvenience — acetaldehyde is carcinogenic. For this genotype: alcohol carries specific carcinogen exposure risk at any dose.
MTHFR C677T Homozygous	Nitrous oxide — avoid for recreational use entirely. Disclose before any dental procedure. Folic acid supplements — never, replace with 5-MTHF. High-dose alcohol — amplifies homocysteine-mediated cardiovascular and neurological risk.	MTHFR homozygous with nitrous = double methylation cycle impairment (MTHFR already impaired + nitrous destroys B12 → methionine synthase blocked). The compendium explicitly flags this. The intervention is disclosure and preparation, not complete avoidance of all dental anesthesia — but the risk must be acknowledged and managed.

5.2 — Genomic Vulnerability-Based Substance Avoidance

Your vulnerability	Substances to treat as high-risk	The pharmacological reason
GABRA2 High-Risk Haplotype	Alcohol (the primary risk), benzodiazepines, GHB, barbiturates.	'The Hard Fail Genotype' (compendium). GABRA2 determines baseline GABA-A tone. Low baseline + exogenous GABA potentiation = the combination that the Sage's depressant vulnerability runs through. The gap is real and the compound fills it with extraordinary precision.
AKT1 T/T	Cannabis (elevated psychosis risk), synthetic cannabinoids (absolute contraindication).	AKT1 T/T produces more complete dopamine dysregulation from CB1 receptor activation. The same cannabis experience that is benign for AKT1 C/C carriers can produce psychotic features in T/T carriers, particularly at high THC concentrations.
SLC6A4 Short/Short	MDMA specifically (devastating to a lower-baseline serotonin transporter system), any serotonin-releasing substance.	Short/short SLC6A4 already has reduced SERT expression. MDMA forces massive serotonin release from the same low-density transporter system. The depletion is proportionally more severe. Recovery is longer. The neurological consequences are amplified.
OPRM1 G Allele	Opioids (higher dose needed for effect — sets up tolerance escalation), synthetic opioids (fentanyl specifically — hotspot problem amplified).	G allele reduces MOR binding affinity. Opioids at standard doses may feel less effective, leading to dose escalation — the pharmacokinetic setup for dependence. The person using opioids for pain who has OPRM1 G/G needs to tell their physician, because adequate pain management requires different dosing and because the tolerance trajectory is steeper.
APOE ε4 Carrier	Alcohol specifically (documented neurodegenerative risk amplification for APOE ε4). Heavy stimulant use (amplified	APOE ε4 carriers face higher Alzheimer's disease risk at baseline. Alcohol accelerates the neurodegenerative trajectory in this population

	excitotoxic risk). Chronic sleep deprivation from substance disruption.	through multiple mechanisms including increased amyloid-beta accumulation. For APOE ε4 carriers: alcohol is not merely a liver question. It is a brain question.
G6PD Deficiency	Poppers/alkyl nitrites — high methemoglobinemia risk. Primaquine and several other medications. Check the G6PD interaction database before any new medication if you carry G6PD deficiency.	G6PD (glucose-6-phosphate dehydrogenase) deficiency impairs the ability to reduce oxidized hemoglobin. Poppers (alkyl nitrites) produce methemoglobin through oxidation — G6PD deficient individuals cannot reconvert it efficiently, producing life-threatening oxygen deprivation at doses that are tolerated by G6PD-normal individuals.

THE CENTURION — The Substance Interaction Checker tool in the biohacker suite applies your specific CYP450 profile to any substance or medication you are considering. Run it before every new prescription and before any recreational substance encounter. The output is your personal safety database.

STEP 6 — YOUR PROFILE-MATCHED SUPPLEMENT STACK — ONLY WHAT YOUR CODES SAY

THE CENTURION — The Anti-Reddit Principle: Nothing From General Advice. Everything From Your Profile.

⚠ THE SUPPLEMENT AND PEPTIDE RECOMMENDATIONS IN THIS STEP COME EXCLUSIVELY FROM YOUR DASHBOARD OUTPUT BASED ON YOUR 16 DOMAIN CODES. DO NOT ADD SUPPLEMENTS FROM SOCIAL MEDIA, BIOHACKING FORUMS, OR GENERAL WELLNESS CONTENT. YOUR CODES ARE YOUR PROTOCOL.

The biohacker dashboard, once your domain codes are loaded and your weight and body composition are entered, outputs weight-based dosing recommendations for supplements and peptides matched specifically to your genetic profile. This output is your prevention stack. Add nothing that is not in it. This is not a limitation — it is precision.

6.1 — The Universal Foundation Stack

Regardless of domain code output, these four supplements are appropriate for all MTHFR-checked individuals as the non-negotiable foundation layer. Everything your profile adds is built on top of this:

Supplement	Dose	Timing	Why everyone needs this
5-MTHF (or folate if MTHFR-clear)	400mcg (MTHFR clear) or 400–1000mcg (MTHFR variant)	Morning with food	Methylation foundation. Neurotransmitter synthesis support across all three monoamines. The most impactful single supplement for neurological baseline across all profiles.
Methylcobalamin (B12)	1000mcg sublingual	Morning	Methylation cycle partner for 5-MTHF. Neurological integrity maintenance. Myelin synthesis support. Active form only — not cyanocobalamin.
Magnesium glycinate	400mg elemental	Evening	The most commonly deficient mineral in the modern population. GABA-A receptor support. NMDA modulation. Sleep quality. Anxiety reduction. Cofactor for over 300 enzymatic reactions including the

			methylation cycle.
Omega-3 DHA + EPA (algae-based or fish oil)	1–2g DHA + 1g EPA daily	Morning with food (fat-containing meal)	Neuronal membrane integrity. Anti-neuroinflammatory. Serotonin and dopamine receptor membrane environment. The brain is 60% fat — DHA is its primary structural component. The baseline that every other intervention operates within.

6.2 — Domain Code-Driven Additions

From your dashboard output, add the domain-specific supplements that your codes indicate. The dashboard provides weight-based dosing — use those numbers, not general recommendations. Key code-specific additions:

- High NM (Neuromodulatory) score: 5-HTP (evening), L-tyrosine (morning) based on whether serotonin or dopamine pathway is flagged
- High MX (Mood-Anxiety) score: Ashwagandha, Rhodiola, inositol — matched to Sage profile management
- High EM (Energy-Mitochondrial) score: NMN/NAD+ precursor, CoQ10 — matched to mitochondrial genetic variant
- High CV (Cardiovascular) score: TMG/Betaine, L-citrulline — matched to MTHFR cardiovascular burden
- High NP (Neuroprotection) score: Resveratrol, alpha-lipoic acid, EGCG — matched to APOE or antioxidant deficit markers
- High SL (Sleep-Longevity) score: Low-dose melatonin (0.5mg), tart cherry extract — matched to melatonin synthesis variants
- High GH (Gut-Health) score: L-glutamine, zinc carnosine, probiotics — matched to MTHFR gut-barrier variants

Every addition is from your dashboard output. The dose is the weight-based dose your dashboard calculated. Not a general dose from a supplement label. Your number.

6.3 — What NOT to Add

THE CENTURION — The No-Reddit Principle Applied to Supplements

The biohacking community generates an extraordinary volume of supplement recommendations — for longevity, cognitive enhancement, body composition, sexual performance, sleep optimization, and every other domain. Almost none of it is individualized to your genomic profile. What works brilliantly for a Val/Val Warrior

with low RDS score may be entirely inappropriate for a Met/Met Sage with high MTHFR burden.

- Do not add any supplement that does not appear in your dashboard output, regardless of how compelling the evidence for it sounds in general
- Do not take high-dose single vitamins without knowing your status — high-dose niacin can worsen anxiety in Sage profiles; high-dose vitamin D without K2 creates cardiovascular calcification risk; high-dose zinc depletes copper
- Do not layer stimulant supplements (caffeine, tyramine-rich foods, yohimbine, synephrine) without CYP1A2 and COMT context
- Do not take 5-HTP if you are on any serotonergic medication without physician guidance
- Do not take supplements marketed by biohacking influencers that have no peer-reviewed evidence base — the Recovery Kernel compendium cites only evidence-based interventions

STEP 7 — THE PEPTIDE EVALUATOR — LIFE PHASE OPTIMIZATION

THE CENTURION — Move Through Life's Demands Without Pharmaceutical Dependence

The Recovery Kernel peptide advisor tool evaluates peptide interventions based on your profile and your current life phase. Peptides are not supplements — they are biological signaling compounds that act on specific receptor pathways. The Minimum Effective Dose principle applies with particular force: more is not better, and off-profile use is specifically not endorsed by this framework.

7.1 — The Life Phase Framework

Life phase	Primary peptide consideration	What your evaluator checks
Baseline maintenance (no acute stressor)	BPC-157 (oral, low dose, cyclically) for gut-brain axis integrity and baseline system maintenance. Selank if MX domain score is high (anxiety prevention). Semax if CB domain shows cognitive vulnerability.	Current domain code scores. Body weight for dosing. Any current supplements that interact with peptide mechanisms. The evaluator outputs: recommended, cautionary, or avoid for each peptide.
High-performance demand (peak work, competition, athletic event)	BPC-157 for tissue resilience during high-output periods. Semax for cognitive demand peaks. Ipamorelin if MP domain score warrants growth hormone optimization during high-training phases.	Performance phase duration. Training load if athlete. Cognitive demand level. The evaluator matches the demand type to peptides that support without creating dependence.
Acute stress or challenge period	Selank specifically — the anxiety management peptide with no dependence liability. Adaptogens (from supplement stack) amplify. BPC-157 for the physical stress response.	Stressor type (social, physical, cognitive, existential). Duration. Current COMT profile. Sage constitutions: stress period requires the most urgent management to prevent depressant-seeking.
Recovery from illness or injury	BPC-157 primary — the most evidence-based peptide for tissue repair across multiple systems. TB-500 for significant soft tissue injury. Thymosin alpha-1 if immune support indicated.	Injury type. Severity. Current medications (most peptides have minimal drug interactions but evaluate). The evaluator provides the injury-specific protocol.

Sleep deficit or circadian disruption (travel, shift work)	Epitalon for circadian normalization. Low-dose melatonin timing protocol from the energy drink intelligence guide. The sleep stack from your SL domain code.	Circadian disruption type (travel direction, shift schedule). Duration. Current SL domain score. Epitalon use is periodic, not daily — the evaluator provides cycling guidance.
Aging and longevity optimization (30+)	Epitalon (telomere and pineal pathway). NAD+ precursors from EM domain code. Semax for sustained cognitive maintenance. The NP domain code's neuroprotective stack.	Age. APOE status (highest urgency for ε4 carriers). NP domain score. EM domain score. The evaluator applies the longevity evidence base from the compendium to your specific markers.

7.2 — Using the Peptide Evaluator

13. Open the peptide advisor tool (peptide_advisor_with_oral_health.html)
14. Load your genomic profile (or enter your domain codes manually)
15. Select your current life phase from the phase selector
16. Enter your body weight — all dosing is weight-based
17. Review the output — the evaluator sorts peptides into: Recommended (matched to your profile and phase), Cautionary (use with awareness), and Avoid (contraindicated for your profile)
18. Implement ONLY the Recommended peptides at the evaluator-specified doses
19. Cycle peptides as the evaluator indicates — most peptides are not for continuous daily indefinite use

STEP 8 — SPORTS AND PHYSICAL ARCHITECTURE — MATCHED TO YOUR CONSTITUTION

THE CENTURION — Protocol 03 Applied Proactively — Building the Physical Reward System Before It's Needed

The compendium's Protocol 03 (Physical Movement) is one of the primary recovery tools in every substance-specific guide. Its application here is preventive: building the physical reward architecture that fills the dopamine/endorphin/anandamide gap before any substance ever has the opportunity to fill it.

Physical movement is not optional in this framework. It is pharmacological — it produces BDNF (neural repair and neuroplasticity), dopamine (Warrior's fuel), serotonin (the mood stabilizer), endorphins (the pain and social bonding system), and anandamide (the endocannabinoid contentment molecule). No supplement stack replicates this combination. The physical architecture must be established and maintained as non-negotiable maintenance.

8.1 — COMT-Matched Physical Architecture

Constitution	Optimal physical pursuits	What to avoid
Warrior — Val/Val COMT	High-intensity interval training (HIIT): 3–4x per week minimum. Combat sports (boxing, wrestling, MMA, judo): competition element essential. Competitive team sports: the social-stakes dopamine is as important as the physical. Powerlifting or Olympic lifting: the intensity floor must be genuinely high. Competitive running (5K, 10K, marathon training).	Pure calm practices without physical demand as primary exercise (yoga, gentle walking). These can supplement but cannot be the primary physical architecture for the Warrior. The dopamine requirement is not met by low-intensity movement.
Sage — Met/Met COMT	Yoga (particularly ashtanga or vinyasa with genuine challenge): the physical demand without sympathetic overdrive. Rock climbing: intense problem-solving focus without sustained high-arousal. Swimming: rhythmic, meditative, physically demanding. Hiking: challenge plus nature plus parasympathetic engagement. Archery or precision sports: intense focus without high-	High-arousal, competitive, high-adrenaline sports as primary architecture: compound the catecholamine load the Sage is already managing. Combat sports for a Sage require careful calibration — the adrenal surge can tip the already-elevated catecholamine system into anxiety and overstimulation.

	arousal.	
High DRD2 A1 RDS Profile (either COMT)	Multiple sports or physical pursuits simultaneously. Novelty is dopaminergic. The same activity done indefinitely produces tolerance. Rotate through 3–4 different physical pursuits so no single one can become the sole source.	Extreme sports with increasing danger threshold as the primary dopamine source — this is the high-RDS addiction transfer pattern. The risk-escalation is the RDS seeking to increase the signal. Structured challenge within safe parameters, not increasing danger.

8.2 — The Minimum Physical Architecture

This is the non-negotiable floor — below which the prevention architecture is compromised regardless of supplement stack or peptide protocol:

- Vigorous aerobic exercise: 45+ minutes, 4+ times per week. 'Vigorous' means elevated heart rate, sweating, increased respiratory rate. This is the BDNF and endocannabinoid threshold.
- Resistance training: 2–3 times per week. Muscle mass is the primary metabolic reserve and the primary physical resilience architecture.
- Cold exposure (optional but evidence-based): 2–3 minutes cold shower end-cap or cold plunge 2–3x per week. Norepinephrine and dopamine spike. Endorphin release. Mood stabilization.
- Walking (daily): 7,000–10,000 steps minimum. The baseline movement that keeps the endocannabinoid system in normal tone.

STEP 9 — MUSIC AND SONIC ARCHITECTURE — PROTOCOL 12 APPLIED PROACTIVELY

THE CENTURION — The Compendium's Sonic Protocol as Daily Maintenance

The Recovery Kernel Compendium dedicates a full protocol (Protocol 12) to sonic architecture — the specific use of music to support neurological states. In the recovery context, it provides state regulation during withdrawal. In the prevention context, it provides state optimization during daily life — using music as a precision tool for the neurological state you are building and maintaining.

9.1 — COMT-Matched Daily Music Architecture

Context	Warrior — Val/Val music architecture	Sage — Met/Met music architecture
Morning — state activation	High-BPM (120–140+), driving rhythms, competition-adjacent music. Hip-hop with strong beat, electronic music, metal, drum and bass. Goal: activate the dopaminergic arousal the Warrior baseline needs to function optimally.	Moderate BPM (80–100), melodic structure, not high-arousal. Classical, jazz, acoustic. Goal: activate without overstimulating the already high-catecholamine baseline.
Work / Focus	40 Hz binaural beats or gamma isochronic tones for analytical focus. Instrumental only — lyrics split attention. Ambient electronic at low to moderate BPM.	Alpha binaural beats (8–12 Hz) for calm focus. Instrumental classical or minimal electronic. No sudden dynamics. The Sage's focus is disrupted by auditory arousal.
Exercise	Warrior: maximum arousal music during the exercise itself. BPM matching the activity pace. The music is part of the dopamine architecture. This is not mood — it is performance fuel.	Sage: BPM-matched to the activity but not attempting high arousal. The focus is the movement, not the music amplification. Music supports rather than drives.
Evening — deactivation	Transition deliberately. Lower BPM progressively from 6 PM onward. The Warrior's baseline requires active deactivation signaling — the nervous system does not naturally downregulate without cues.	Maintain the gentler music throughout. Evening music can be extremely quiet, ambient, or silence. The Sage's system is already managing catecholamine load — give it the quietest possible input.
Sleep preparation	Delta binaural beats (0.5–4 Hz)	Same as Warrior but can

	starting 30 minutes before bed. Low volume. No dynamics. The compendium's Protocol 17 sonic sleep architecture.	tolerate even more minimal input. Some Sages find that total silence is optimal for sleep — the nervous system, having been adequately stimulated through the day, asks for nothing in the sleep window.
High stress or low mood	The compendium's emotional regulation music: soul, R&B, singer-songwriter at 60–80 BPM. Not more high arousal — the nervous system needs regulation, not further stimulation when depleted.	Same as Warrior for stress/low mood. The Sage's catecholamine load in stress periods makes high-arousal music actively harmful. Warm, melodic, human-voice-containing music.

9.2 — The Flow State Sonic Protocol

The compendium's flow state architecture identifies specific sonic conditions that support the challenge-skill balance zone where flow occurs. For prevention purposes, flow is the primary non-addictive neurological state — the simultaneous release of dopamine, serotonin, norepinephrine, endorphins, and anandamide that the compendium documents as the natural cocktail that produces genuine aliveness.

- Instrumental only: lyrics activate language processing networks that compete with the attentional absorption of flow
- BPM matched to task rhythm: writing flows with 80–100 BPM; physical tasks with matched-to-activity; coding with 100–120 BPM instrumental
- No sudden dynamics or genre shifts: flow requires continuous auditory environment without interruption
- Curated playlist ending in silence (not autoplay): autoplay-generated next tracks break the flow state through novelty disruption

STEP 10 — THE FULL LIFESTYLE ARCHITECTURE — ALL NATURAL REWARDS

THE CENTURION — C-28 Applied to People Who Have Never Been Addicted — Building the Life That Makes the Artificial Version Unnecessary

Centurian Paper C-28 — 'The Olympian of Nothing Becomes the Olympian of Something Real' — is the compendium's architectural framework for natural addiction to real pursuits. It was written for people in recovery. Its logic applies with equal force — and greater effectiveness — to people who are not yet in recovery, because they can build the architecture before the gap opens.

C-28's central insight: the drive that addictive substances exploit is not a pathology. It is human energy that has found an inferior address. The Warrior's obsessive intensity that could be applied to a startup, a martial art, an instrument, or an engineering problem — applied instead to a drug because the drug was available first. Prevention is making sure something real is available first.

10.1 — The Dopamine Menu for Non-Addicted Maintenance

THE CENTURION — The Compendium's Menu — Applied as Daily Practice, Not as Recovery Tool

The compendium provides the Dopamine Menu as a recovery tool during the anhedonia of early abstinence. Its architecture applies as a daily maintenance framework for the non-addicted person: the deliberate curation of natural reward sources that keeps the reward system richly stimulated through legitimate means.

Category	What it provides	Prevention architecture application
Appetizers — Quick Reward (5–30 min)	Immediate state change. Cold shower (dopamine + BDNF spike). Vigorous movement. Sunlight. Music engagement. A brief conversation. The compendium names these as 'for: immediate craving management, state change, quick dopamine support.'	For the non-addicted person: maintain 3–4 appetizers available at any moment. When boredom, mild anxiety, or restlessness arise — reach for these. The gap between restlessness and substance is filled by a cold shower or a walk when these are established habits.
Entrees — Sustained Reward (1–3 hours)	Real satisfaction through meaningful engagement. Vigorous exercise. Deep work at the challenge-skill edge. Flow state activities. Service to others. Compendium: 'Playing music, creating art, coding or	The primary weekly architecture. 5–7 entree-level activities per week. These are the foundation of a life that does not generate the gap that substances fill. The compendium's rule: the flow

	building, sports or games.'	state must be accessible in at least 2–3 domains simultaneously.
Desserts — Occasional Treats (use mindfully)	Pleasures that can tip into excess. The compendium names five dessert rules: Plan it. Savor it. Limit it. Space it. No guilt. These apply to food treats, entertainment, purchases, and experiences.	The dessert rules apply to EVERYTHING in the non-addicted person's life that has dependency potential — social media, food, screen time, sex, shopping. The compendium's five rules create the structural relationship with pleasures that prevents any single one from acquiring problematic primacy.

10.2 — The Flow State as the Primary Anti-Addiction

THE CENTURION — Challenge at Four Percent Beyond Current Skill — Where the System Is Fully Engaged

The compendium names the challenge-skill balance precisely: 'The activity must stretch your capability approximately four percent beyond your current skill level. Too easy produces boredom. Too hard produces anxiety. The sweet spot — the edge of competence — is where flow lives.'

Flow is the neurological state that most reliably replaces what addictive substances provide. The compendium documents the simultaneous release during flow of dopamine, norepinephrine, endorphins, serotonin, and anandamide — the same combination that addictive substances approximate chemically, but produced naturally, sustainably, and in service of genuine skill development and meaning.

For prevention: identify at minimum two activities that reliably produce your flow state. Then deliberately maintain the skill development in those activities — always at the four-percent frontier, never allowing them to become so comfortable that the flow zone disappears. These two activities are the most important elements of your prevention architecture.

10.3 — Connection as Pharmacology

THE CENTURION — The Opioid and Oxytocin Architecture of Genuine Human Connection

The compendium's OPRM1 discussion identifies a pharmacological fact that is easy to overlook: genuine human connection activates the same mu-opioid receptors that opioids activate, through endorphin release. The laughter, physical safe touch, eye contact, and genuine vulnerability of real human relationships are not merely pleasant — they are pharmacological. They are the endogenous version of what opioids, alcohol, and MDMA are the exogenous approximation of.

- Maintain at minimum 3–5 genuine reciprocal relationships — not online, not parasocial, not professional. Real people with real knowledge of you.
- Schedule physical contact: the oxytocin release of safe physical touch (hugs, handshakes, physical sport) is not replaceable by screen time. The OPRM1 G allele carrier who is not getting adequate physical connection is running an endorphin deficit that will be filled by something.
- Vulnerability in conversation: the oxytocin-endorphin release of genuine self-disclosure in a trusted relationship is the most powerful natural reward in the human repertoire. It is also the most avoided. Building the capacity for it is the most rewarding and most substance-proof natural architecture available.
- Laughter and play with others: the compendium documents the endorphin-serotonin-oxytocin triad of genuine shared laughter. Not consuming comedy alone. Laughing with someone.

10.4 — Nature and Awe as the Anandamide Architecture

The compendium documents awe as an endocannabinoid and serotonin activator — genuine, large-scale natural environments that produce the dissolution of ordinary self-focus are among the most reliable natural CB1 activators available. Stanford research on awe documents measurable DMN suppression, reduced self-focused cognition, and enhanced perspective-taking — pharmacologically identical to the effects that cannabis and psychedelics artificially produce at the same receptors.

- Monthly immersive nature time: minimum one full day per month in a genuinely large-scale natural environment — not a city park but mountains, ocean, forest, open sky
- Daily short nature exposure: 10–20 minutes outside in natural light, even if urban
- Intentional awe practice: deliberate engagement with scale — astronomical observation, geological time, the overwhelming complexity of biological systems — as a regular practice. The compendium: 'Confrontation with genuine scale produces the same cognitive shift that psychedelics artificially generate.'

STEP 11 — THE ONGOING MONITORING PROTOCOL — QUARTERLY SELF-ASSESSMENT

THE CENTURION — The Self-Sovereign Health System Is an Active Practice, Not a One-Time Setup

The Prevention Protocol is not set-and-forget. Biology changes with age, stress, illness, and life circumstance. The supplement and peptide stack that was optimal at 25 may need updating at 35. The genomic profile does not change, but its expression — which vulnerabilities are most active — does. Quarterly monitoring keeps the system calibrated.

11.1 — The Quarterly Biomarker Panel

Order these through direct-access labs (Ulta Lab Tests, Request A Test, LabCorp Direct) without a physician order in most US states. These are the functional proxies that tell you whether your prevention stack is working at the biological level:

Marker	Optimal range	What it tells you	Action if out of range
Serum homocysteine	< 8 µmol/L (optimal 6–7)	The methylation proxy. The most direct functional measure of your MTHFR stack's effectiveness.	If elevated: increase 5-MTHF dose, add TMG/Betaine, check B12 status. If very elevated (>15): physician consultation for methylation support evaluation.
Serum B12 (methylcobalamin)	> 400 pg/mL (optimal > 600)	Active B12 status. Confirms your methylcobalamin supplementation is absorbing.	If low despite supplementation: switch to sublingual form (faster absorption). Rule out absorption issues. If extremely high (>2000): reduce dose.
Serum magnesium (RBC magnesium preferred)	RBC Mg: 5.2–6.5 mg/dL	Functional magnesium status. Serum magnesium is poorly sensitive — RBC magnesium is more accurate.	If low: increase magnesium glycinate dose. Check for dietary sources of depletion (high sugar, high caffeine, heavy sweating, stress).
Serum vitamin D (25-OH-D)	50–80 ng/mL (optimal for neurological function)	Vitamin D status — relevant to dopamine synthesis (BH4	If below 40: add or increase D3 supplementation with K2. If below 20: physician consultation for therapeutic

		pathway), immune function, and mood.	repletion dose.
hs-CRP (high-sensitivity C-reactive protein)	< 1.0 mg/L	Systemic inflammation proxy. Neuroinflammation is a primary driver of mood, cognition, and vulnerability to addictive substances. Elevated CRP indicates active inflammatory process.	If elevated: review omega-3 dose (increase EPA), review sleep quality, review processed food intake, rule out infection or inflammatory condition. Curcumin addition if chronically elevated.
Fasting insulin and glucose	Fasting insulin < 5 µIU/mL; fasting glucose 70–85 mg/dL	Metabolic health proxy. Insulin resistance affects dopamine signaling, mood, energy, and the reward system.	If insulin is elevated with normal glucose (early insulin resistance): dietary intervention (reduce refined carbohydrates, add resistance training). If glucose is elevated: physician consultation.
Testosterone (total and free) — both sexes	Varies by sex and age — compare to age-matched reference ranges	Anabolic hormone status. Low testosterone in men produces fatigue, depression, low motivation — the gap that anabolic steroid misuse fills. In women: relevant to energy, mood, libido.	If significantly below range: physician consultation. Do not self-supplement testosterone without physician involvement — the HPG axis disruption from exogenous testosterone is the specific risk the anabolic steroid guide documents.

11.2 — The Quarterly Self-Assessment Protocol

Beyond blood markers, assess these domains every three months — honestly, in writing:

Domain	Questions to answer honestly
Natural reward architecture	Are my flow state activities still producing flow? Am I still at the four-percent frontier or have I settled into comfort? Do I have at least 5 genuine entree-level reward sources active? When is the last time I laughed genuinely with another person?
Substance relationship	Have I used any substance from the avoidance list? Have I noticed any substance producing a disproportionate pull — suggesting I am approaching the viability boundary? Have I been using caffeine, alcohol, or cannabis more than my quarterly baseline?
Sleep quality	Am I falling asleep within 20 minutes of intending to? Am I waking refreshed without an alarm most days? If not: which element of the sleep architecture has slipped? Address it before reaching for a sleep aid.
Mood and anxiety baseline	Is my anxiety at baseline or elevated? Is my energy at baseline or depleted? If either: what changed in the past quarter? Supplement dose drift? Stressor accumulation? MTHFR stack lapsed? Address the mechanism, not the symptom.
Physical architecture maintenance	Am I hitting the minimum physical architecture (4+ vigorous sessions per week)? Has any injury or life disruption caused sustained reduction? If yes: recalibrate immediately — the physical architecture is the most important single prevention intervention.
Connection quality	Am I in genuine reciprocal relationship with at minimum 3 real people? Have I been isolating? Have screen/parasocial relationships been substituting for genuine ones? Connection deficit is the most reliable predictor of vulnerability increase.

11.3 — When to Update Your Stack

- Every 12 months: re-run your domain code analysis against current literature updates to the profiler's variant database
- After any significant health event (illness, surgery, injury): re-evaluate the peptide protocol and run the evaluator for the recovery phase
- After any major life change (new job, relationship change, location change, loss): the social and environmental stress changes your vulnerability profile temporarily — apply the stress-phase peptide and supplement calibration
- If biomarkers drift outside optimal range two consecutive quarters: systematic review of which element of the stack has drifted
- At 35, 45, 55: the aging phase recalibration. Epitalon, NAD+ precursors, and the longevity-focused additions from the NP and EM domains become progressively higher priority

The Self-Sovereign Pledge

THE CENTURION — This Is What It Means to Stay Out of the System

The Recovery Kernel was written, in its own words, 'for the ones who ran out of time before anyone told them that what drove them was not a moral failing but a biological one.' This guide was written for the ones who have not yet run out of time. Who still have the opportunity to know their biology before the gap opens, to fill it before it becomes urgent, and to build the life that makes the artificial version of what they need genuinely unnecessary.

The eleven steps in this guide are not eleven separate projects. They are a single continuous practice — the practice of knowing yourself with the precision that the Recovery Kernel applies to recovery, applied instead to its permanent prevention. You do not have to become the person who needed the recovery framework to use it. You can use it to ensure that you never are.

THE SELF-SOVEREIGN PLEDGE

I have done my genomic sequencing. I know my constitutional profile.

I have treated my MTHFR if it required treatment. I do not take folic acid.

I know which substances my genome makes dangerous for me. I avoid them.

My supplement stack comes from my domain codes, not from the internet.

I have built my physical architecture. I maintain it non-negotiably.

I have at least two reliable flow state activities. I am always at the frontier.

I have genuine connection with real people. I invest in it deliberately.

I check my biomarkers quarterly. I act on what they tell me.

I know the difference between my dopamine baseline needing support and craving a substance.

I am not a generic human. I am not in the healthcare system. I am sovereign in my own biology.

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Tool suite: biohacker_multi_domain_profiler.py | biohacker_final_edition_with_json_import.html | peptide_advisor_with_oral_health.html

All recommendations derive from the Recovery Kernel Complete Centurion Compendium and the Biohacker Tool Suite only.

This guide is not medical advice. Consult a physician for clinical decisions.